Effectiveness of Computer Assisted Instruction as Perceived by Criminology Instructors

ELANIE D. MANUBAY
Mindoro State College of Agriculture and Technology
Calapan City Campus
EDEN M. PAPA
Polytechnic University of the Philippines
Parañaque City Campus

Abstract:

The objective of this research is to determine the effectiveness of computer assisted instruction in teaching-learning process despite of the viewed problems regarding competency of instructors to manipulate and utilize the available computer assisted instruction facilities in teaching and the sufficiency of available computer assisted instruction facilities. The researchers utilized the descriptive method of research to satisfy the needed information for the present study. Their focus was on the actual result of the distributed questionnaire dealing with statements that called for respondents' perception on the extent of the effectiveness of Computer Assisted Instruction in teaching-learning process. Results show that respondents are young adults and more than half of them are females. In addition, majority of them are college and masters' degree holder with a trainings and seminars attended related to computer operation. Computer assisted instruction facilities are describe as moderately sufficient in quantity generally because it is costly to buy. Computer assisted instruction is effective, particularly in optimizing the instructors' time for classroom discussions as the lesson to be presented was already prepared. The researchers found out that there are problems encountered regarding the use of CAI and these are addressed. As a result, an action plan

was crafted to strengthen the effectiveness of computer assisted instruction in teaching-learning process.

Key words: computer assisted instruction, criminology instructors

INTRODUCTION

Educational technology is being used increasingly in the third world. As technology in this modern generation becomes more accessible and affordable to the public, its role in these developing countries is rapidly increasing. Sad to say, education system has scarcely changed in spite of all these. Education is one of the most urgent priorities today. As a matter of fact, the Philippine government made an action to provide every youth an access to quality education. Article XIV, Section I of the 1987 constitution states that, "The state shall protect and promote the right of all citizens to quality education at all levels and shall take appropriate steps to make education accessible to all." The provision of quality education results to the attainment of globally competitive nation.

One of the aspects looked into was the teaching-learning process inside the classroom, and how it could help upgrade the student's skills, knowledge, and ability. In this modern generation, the teachers must know how to catch the attention of their students for them to provide quality education.

According to the Commission on Higher Education, (2006) one of the universities that have abreast with state-of-the-art technology is Polytechnic University of the Philippines (PUP). They recognized this as Open University being the Center for Development in the Field of Information Technology. The Department of Science and Technology named PUP as a Virtual Center of Technology as well. Aside from that, the university was deemed by the Philippine Economic Zone Authority as the first cyber university IT Park in the Philippines. From these facts, some may visualize that academe

in the Philippines definitely belong to the high technology world and that Filipinos, are fully informed and globally competitive. It has become clear that the educational foundations of Philippine Society are being eroded by the continuous flow of indifferent and traditional system of teaching that threatens the nation's future and its people. Since, it is observed that the old teaching method is not that very appealing to the educative process and is failing on its effectiveness; can there be a better one?

Computer assisted instruction make instruction more student-centered, encourages cooperative learning, and stimulates maximum participation. (Ackerman, et.al., 2010) Both the teachers and students who enter into collaboration with technology can create an environment that nurtures, supports, and encourages the learning process. These facts pursued the Microsoft Innovative teachers program. Since 2002, this program connects community of educators who shares common interest in teaching and learning process through the use of technology.

Currently, there are many programs and technological tools designated exclusively for use in an educational setting. There are many other forms of technology that are commonly found in classroom which were being utilized in providing a computer aided instructions to students. All of these innovations in the field of education that have been made over the years go together to show that this is a field that is constantly evolving and changing. As innovations in education are made, educators and schools try to find as many ways as possible to incorporate various computer assisted instructions methods into their classrooms.

Through the technological tools, Computer Assisted Instructions an interactive instructional technique whereby a computer is used to present the instructional material and uses combination of text, graphics, sounds and videos in enhancing

the learning process were used by the instructors in imparting the lesson to their students in easy and effective way.

It is in the above context that the researchers came up with this study to determine the effectiveness of computer assisted instruction in teaching-learning process despite of the viewed problems regarding competency of instructors to manipulate and utilize the available computer assisted instruction facilities in teaching and the sufficiency of available computer assisted instruction facilities.

OBJECTIVE OF THE STUDY

The main objective of this study is to determine the effectiveness of computer assisted instruction in teaching-learning process despite of the viewed problems regarding competency of instructors to manipulate and utilize the available computer assisted instruction facilities in teaching and the sufficiency of available computer assisted instruction facilities. The paradigm below reflects the input of the study which is the statement of the problem; the process used such as administration and retrieval of questionnaire and the output of the study which is the crafted action plan.
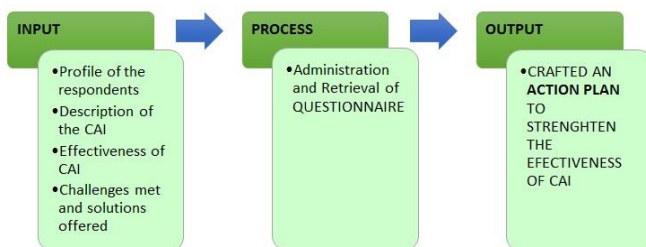

INPUT
- Profile of the respondents
- Description of the CAI
- Effectiveness of CAI
- Challenges met and solutions offered

PROCESS
- Administration and Retrieval of QUESTIONNAIRE

OUTPUT
- CRAFTED AN **ACTION PLAN** TO STRENGHTEN THE EFFECTIVENESS OF CAI

Figure 1. Research Paradigm

Statement of the Problem

This study aimed to determine the effectiveness of Computer Assisted Instruction as the teaching-learning tool in MinSCAT,

Calapan City Campus. Specifically, the study sought to answer the following questions:

1. What is the profile of the respondents in terms of:
    1.1. age,
    1.2. gender,
    1.3. highest educational attainment, and
    1.4. number of trainings and seminars attended related to information technology and computer operation?
2. How may the Computer Assisted Instruction facilities be described as to availability?
3. How effective are the Computer Assisted Instructions utilized by the instructors?
4. What challenges are met by the respondents and how are these addressed?
5. How may the findings be utilized in the preparation of action plan to strengthen the Computer Assisted Instruction?

Scope and Limitations

The focus of this study is to determine the effectiveness of Computer Assisted Instruction in teaching-learning process as perceived by the Criminology instructors at Mindoro State College of Agriculture and Technology, Calapan City Campus during the academic year 2015-2016.

REVIEW OF RELATED LITERATURE AND STUDIES

This section presents the related literature and related studies both foreign and local regarding the effectiveness of Computer Assisted Instruction as teaching-learning tool. The researchers browsed the Internet to gain pieces of information that were relevant to the study and it served as her main source of idea and knowledge. Moreover, she read some books, theses, and newspapers which provided better perspective toward the attainment of this study.

Foreign Literature and Studies

Wei et.al (2011), asserted that in today's society, this is still a significant barrier to implement technology into the curriculum because of socio-economic status of a school, and its student, will impact whether resources can be purchased and implemented in school system. He added that there are circumstances need to be considered in the adoption of educational technology such as the technical access (physical availability of technology) and social access(the mix of professional knowledge, economic resources and technical skills required for effective use of technology).

Ross (2010), concluded that the use of Internet in education has had a positive impact on students, educators, as well as the educational system as a whole as it provides evidence-based strategies. Hence, to make it an effective one, the teachers have to embrace technology in order to gain these benefits so they can address the needs of their digital natives. Using technology in the classroom can allow teachers' to effectively organize and present lessons.

Aside from that, Straub (2009), stated that the generational digital divide is a common barrier because it challenges teachers to keep up with the ever-changing technology in the classroom. Even extending beyond the classroom, by the time an individual "adopts a technology, a new one is developed, marketed, and requires a new adoption cycle". Students, who have grown up in a digital environment, may be well acquainted with the on-going process of new technological innovation but may be lacking the guidance they need in order to use these technologies effectively. From the teacher's perspective, this process could be an intimidating experience because something as foreign as the computer and Internet must first be learned and then taught to the students in a classroom setting. It is difficult to formulate a curriculum, which aims to integrate technology into the classroom, when

the decision-makers are still in the process of learning about it themselves.

Moreover, Richey (2008), stated that the use of educational technology allows students to access course material at home and engage with the numerous online resources available to them. These online lessons allow for students who might need extra help to understand materials outside of the classroom.

Dual Coding Theory by Paivio and Mayer (2003), is a theory that supports this study because it serves most to learning via multimedia which focuses on the processing of information. This theory argues that information is processed through two distinct channels—visual and auditory. Each individual channel is limited in the amount of information it can process at a time, and humans learned actively by integrating mental representations. The teacher uses educational technology to reinforce and complement his presentation of the lesson. With the students' vision as well as their auditory learning will occur best.

Diffusion of Innovations by Rogers (1983), emphasized educators' adoption of technology. Over a long period of time, educators adopt different and more modern educational technology to enhance their teaching skills and to produce globally competitive personalities.

Also, Smith et al. (2004), stated that educational technology provides the means to focus on active student participation and to present differentiated questioning strategies. This allows some students to individually progress from using low ordered skills gained from drill and practice activities, to higher level thinking through applying concepts creatively and creating simulations.

Schramm's Theory of Communication (1954), states that, "Learning occurs when a message is communicated by a source through a medium." They both believed and proved that there is always a message to be communicated to make

learning takes place. The teacher can instruct his students effectively and efficiently if he will use educational technology as a medium. That educational technology is an essential and effective way to send the message to the learner accurately and clearly.

Another theory is the Constructivism Theory by Prof. George E. Hein (1991). It states that, "The students can guide their own learning through collaboration of others with similar ability and experiences." This is related to the present study because learning can be accomplished through the use of technology. In this theory, students were given a chance to reflect on what they have learned and acquired during the presentation. Learners construct their own knowledge by selecting and transforming information, problem solving, and incorporating real life experiences into newly acquired knowledge. Its implication is the importance of learners' motivation. He utilizes educational technology that is related to the concepts needed to be taught. He must familiarized himself with educational technology that will help create a problem-solving environment, drawings, calculators, encourage discussion and interaction, use cooperative learning groups, require self-validation of responses, and listen actively.

According to Kulik (2013), who studies the effectiveness of computers used for instruction, students usually learn more in less time when receiving computer-based instruction and they like classes more and develop more positive attitudes toward computers in computer-based classes.

Oliver (2012), in a study to investigate how teacher preparation programs are preparing future K-12 educators to effectively use technology to enhance learning, the results demonstrated a gap in understanding the appropriate uses of technology in a learning environment. Similar to learning a new task or trade, special training is vital to ensuring the effective integration of classroom technology. The current school curriculum tends to guide teachers in training students

to be autonomous problem solvers. This has become a significant barrier to effective training because the traditional methods of teaching have clashed with what is now expected in the present workplace.

In addition, according to study of Warschauer & Matuchniak (2010), 70.3% of American family households have access to the Internet. According to Richey of Canadian Radio Television and Telecommunications Commission Canada, 79% of homes have access to the Internet. This allows students to access course material at home and engage with the numerous online resources available to them. Students can use their home computers and Internet to conduct research, participate in social media, email, and play educational games and stream videos.

Also, the study by Harris (2009), notes that the use of random Professional Development days is not adequate enough in order to foster the much-needed skills required to teach and apply technology in the classroom. "We are currently preparing students for jobs that don't yet exist..using technologies that haven't been invented…in order to solve problems we don't even know are problems yet". Learning, therefore, becomes and on-going process, which takes time and a strong commitment among the community of educators.

Moreover, MarcPrensky (2009), discusses the idea that teachers are digital immigrants, and students are digital natives. Teachers must continuously work at learning this new technological language, whereas students were born into retrieving information, problem solving, and communicating with this technology. The ways in which teachers are taught to use technology is also outdated because the primary focus of training is on computer literacy, rather than the deeper, more essential understanding and mastery of technology for information processing, communication, and problem solving. New resources have to be designed and distributed whenever the technological platform has been changed. However, finding

quality materials to support classroom objectives after such changes is often difficult even after they exist in sufficient quantity and teachers must design these resources on their own.

Furthermore, Bowers-Campbell (2008), in his study mentioned that Facebook was used as an academic motivation tool for students in a developmental reading course. Initially introduced only for users who had a college or university e-mail address, Facebook expanded later to the general public.

Student interaction is at the core of constructivist learning environments and Social Net-working Sites provide a platform for building collaborative learning communities. By their very nature they are relationship-centered and promote shared experiences. With the emphasis on user-generated-content, some experts are concerned about the traditional roles of scholarly expertise and the reliability of digital content. Students still have to be educated and assessed within a framework that adheres to strict guidelines of quality.

Murray (2007), in her study stated that social networking sites are virtual communities for people interested in a particular subject or just to "hang out" together. Members communicate by voice, chat, instant message, video conference, and blogs, and the service typically provides a way for members to contact friends of other members.

In a study conducted by the National School Boards Association (2007), it was reported that 96% of students with online access have used social networking technologies, and more than 50% talk online specifically about schoolwork. These statistics support the likelihood of being able to bring these technologies into our classrooms and find successful teaching methods to employ their use in an educational setting. Social networking inherently encourages collaboration and engagement. This is meaningful to teachers who are trying to find ways to involve every student in something that is personally engaging. For the teacher, social networking

provides professional development by introducing them a discovery of the learning potential for themselves, finding other educators who are using such technologies in their classrooms, and then connecting with those educators who automatically provide a virtual support community. Social networking can also be used as a motivational tool to promote self-efficacy amongst students.

According to the study conducted by Eugene, et.al (2004), in spite of all the benefits, both teachers and students can be derived from utilizing those educational technology, there are some factors that hindrance them to use such. Even educators who have access to technology often fail to take advantage of it due to the fact that they are unfamiliar with technology. Few instructors in the third world have received adequate training on how to operate various types/forms of technology. Yet they are less motivated for they feel that the use of technology is not beneficial because the student themselves do not have the access of technology at home.

Local Literature and Studies

Ronda (2012), wrote in the Philippine Star, "DepEd to Use ICT to Enhance K to 12 Basic Curriculum". The Department of Education (DepEd) in the Philippines has partnered with the United States Agency for International Development (USAID) to assess the current state of ICT in the primary and secondary schools. ICT is expected to assist in learning and teaching as well as in the school's administrative functions. And counting resources is certainly an important step in evaluating ICT usage in Philippine schools.

Arroyo (2006), every child in the Philippines should envision to acquire quality education, and every classroom should have a computer based on her State of the Nation Address (S.O.N.A.). She also stated her program in providing an approach to ensure high-quality education. It is necessary for a government to support the use of distance education

utilizing e-learning as one approach to promote the provision of quality education in the local communities and to promote equal access to basic education in the elementary and secondary school . There are lots in advantages of using e-learning in the in-school and in the off-school settings in the Philippines. It allows interactivity between he lesson and the learner. The individualization of each learner is enhanced. Its novelty allows the learners to deal with interesting lessons allowing them to become well motivated and receptive to ideas provided.

According to Padolina (2002), "The Information Technology and E-Commerce Council (ITECC) have provided the ground work for e-learning in the Philippines which brought about the enactment of the Republic Act 8972, commonly known as Electronic Commerce Act of the Philippines." The Human Resource Development (HRD) committee has the following functions: (1) to develop policy and programs in e-learning; (2) to develop guidelines on enhancement of the basic education; and (3) to develop IT Human Resources. In order to develop the policy and programs on e-learning in the Philippines, the ITECC-HRD subcommittee on e-learning was established.

Berino (2006), states that, "Technology has brought people closer and bridged the geographic gap." Given this persuasiveness of the technology, it is a challenge for schools, the original disseminators of knowledge and information, to keep abreast of all the technology developments and hence make it more attuned and relevant to the way things are being shaped by technology.

There are of course several things that needed to be addressed in adopting this new paradigm in education. The first and strongest is the mind-set that the teaching environment is still best achieved solely through face-to-face interaction between the teacher and his students. What is important, however, is the teacher's ability to see the way

technology has touched the classroom and see how he can best use them to improve the learning process.

It is thus, a great challenge for teacher now to learn and at the same time relearn new things to be more effective educators.

Garchitorena (2003), president of the Ayala Foundation added that, "It will enable teachers to use digital technology to share and illustrate new ideas with their students, who will have the opportunity to learn new skill and participate actively in classroom lessons."

Manhit (2001), who is the founder of Strat Base, said that, "A nation with the smartest and most innovative ideas will be the most successful."

Students in today's time should be able to adapt to the fast trend of technologies. This will make them globally competitive. This will prepare the students for their future.

From May 3-5, 2007, UNESCO convenes a forum for deans of Education from Teacher Education Institutes. In this forum, the deans collectively explore the challenges of integrating ICT into teacher education and developed plans for implementing Next Generation of Teachers' (Next Gen) project activities in their respective TEIs.

According to Lee (2007), coordinator of the Asia-Pacific Program of Educational Innovation for Development (APEID) at UNESCO Bangkok, the forum will provide an opportunity for deans to discuss a plan institutional change. In particular, the forum will draw attention to the changes needed in teacher education institutions in the Asia-Pacific region, and will provide an opportunity to discuss issue relating to the integration of ICT into teacher education and prepare plans for the implementation of the NextGen Project.

Quah (2007), explained that the NextGen Project is going to be instrumental in creating a new wave of teachers who will be well equipped and knowledgeable in the use of ICT in teaching and learning while the provision of in-service

teacher training continues to be important and relevant, the NextGen Project act is to provide a catalytic effect in creating critical mass of proficient teachers at school, district, and country levels to effect change in the long term.

Veering from familiar teaching methods may not be easy in a classroom setting but this teacher perseveres as she believes in the benefits of trying something new, especially where technology is concerned.

Garcia (2011), made an explanation of the importance of educational technology. He emphasized that it must provide educational experiences that will make the students more active and not be bored. It should be enjoyable to students and at the same time, will meet their needs. It is not only the students who are benefited from the advancement of technology but the teachers as well. The teachers can facilitate the instructional process easily with the use of such educational technology.

In his study, Aquino (2009), cited that educational technology has essential aspects in the teaching-learning

METHODOLOGY

This section presents the statistical treatment used in this research. The researchers used descriptive method to address the specific problems of the study.

Statistical Treatment

The data gathered were validated and encoded using the Microsoft Excel software. The information gathered were tallied, tabulated, and analyzed in order to draw findings. Statistical analysis was made through frequency distribution, percentage, and mean.

Descriptive statistics were used such as frequency count, percentage distribution, and weighted mean. The following statistical measures were used in this study.

1. *Frequency and Percentage Distribution*
   - Simple frequency distribution. This tool facilitates the tallying and counting of frequencies falling under each item or category.
   - Percentage distribution. Translating frequency into percentage will be used as a common base for comparison purposes.

This was applied to the data gathered on identified problems and the suggested remedial measures.

$$Percent(\%) = \frac{f}{n} \, x100$$

wherein:

  f = frequency   n = total number of respondents

2. *Weighted Mean.* The researchers made use of weighted mean to determine the average of responses of the respondents on the effectiveness of computer assisted instruction.

The equation for weighted mean is:

$$Wm = \frac{\sum fx}{\sum f}$$

wherein:

  Wm = weighted mean value
  $\sum fx$ = sum of the product of the weight and frequencies
  $\sum f$ = sum of the frequencies

Answers of the respondents on the questionnaire were summarized and reflected in the summary of findings. To interpret the weighted mean of the respondents' response as of the effectiveness of computer assisted instruction in Mindoro State College of Agriculture and Technology, the researcher followed Likert's numerical ratings as follows:

Range of Weighted Mean Interpretation	Weight	Verbal Interpretation
4.50 – 5.00	5	Very Effective (VE)
3.50 – 4.49	4	Effective (E)
2.50 – 3.49	3	Moderately Effective (ME)
1.50 – 2.49	2	Ineffective (I)
0.50 – 1.49	1	Very Ineffective (VI)

The researchers also used a 4-point scale as shown below, in quantifying and interpreting the description of the computer assisted instruction facilities as to availability.

Range of Weighted Mean Interpretation	Weight	Verbal Interpretation
3.50 – 4.00	4	Very Sufficient (VS)
2.50 – 3.49	3	Sufficient (S)
1.50 – 2.49	2	Moderately Sufficient (MS)
0.50 – 1.49	1	Insufficient (I)

3. Ranking. The ranking in numerical order of the variables from highest to the lowest order was used to determine which among the given variables/indicators is the "greatest" or the "lowest".

RESULTS AND DISCUSSION

This section presents the presentation, analysis and interpretation of data. It presents tabulation of data gathered though questionnaire with the conforming comprehensive explanation.

Tables 1-4 present the demographic information of the respondents of the study as to age, gender, highest educational attainment and number of training and seminar attended related to computer operation.

Table 5 describes computer assisted instruction facilities as to availability.

Table 6 shows how effective the computer assisted instruction in teaching- learning process.

Tables 7-8 reveal the challenges met by the respondents and solutions offered in the application of computer assisted instruction in teaching-learning process.

1. On the Profile of the Respondent

Table 1: Respondent as to Age

Indicators	f	%	Rank
1. 20-29 yrs.old	10	50	1
2. 30-39 yrs.old	5	25	2.5
3. 40-49 yrs.old	5	25	2.5
4. 50 & above	-	-	-
TOTAL	20	100	

Table 1 shows the distribution of frequency and percentage of the profile of the respondents as to age.

As revealed on the table, rank 1 is the age bracket 20-29 years old with ten (10) or fifty percent (50%) of the respondents. Shared in rank 2.5 are the age bracket of 30-39 years old and 40-49 years of old having both twenty five percent (25%) or 5 of the respondents. It indicates that most of the respondents were young adults having an up-to- date learning about the use of computer which may be used in a classroom discussions or in any other activities related to teaching.

Table 2: Respondent as to Gender

Indicators	f	%
1. Male	9	45
2. Female	11	55
TOTAL	20	100

Table 2 shows the distribution of percentage and frequency of the profile of the respondent as to gender.

Forty five percent (45%) or 9 of the respondents were male while 55% or 11 of the respondents were female. Based on the figure, the dominant gender among the respondent is female. It shows that there are more female criminology instructors, perhaps because males choose other profession such as in law enforcement.

Table 3: Respondent as to Highest Educational Attainment

Indicators	f	%	Rank
1. Technical/Non-Degree Program	-	-	-
2. College Graduate	7	35	1.5
3. Master's Degree Holder	7	35	1.5
4. Doctorate Degree Holder	2	10	4
5. Master's Unit Earner	4	20	3
TOTAL	20	100	

Table 3 shows the profile of the respondents as to highest educational attainment.

Thirty five percent (35%) or 7 of the respondents were college graduate while the other 35% or 7 of the respondents were master's degree holder. Both are in rank 1.5. Twenty percent (20%) or 4 of the respondents were unit earners in master's degree program. It shows that most of the respondents were college and master's degree holder and some were master's unit earner. It denotes that the respondents were competent to use computer assisted instruction in their teaching profession.

Table 4: Respondent as to Number of Training and Seminar Attended related to Computer Operation

Indicators	f	%	Rank
1. 1 to 2	10	50	1
2. 3 to 4	5	25	2.5
3. 4 to 5	-	-	-
4. 6 and above	5	25	2.5
TOTAL	20	100	

Table 4 shows the profile of the respondents as to number of training and seminar attended related to computer operation.

Fifty percent (50%) or 10 of the respondents have attended 1 to 2 trainings and seminars which are related to computer operation. Twenty five percent (25%) or 5 of the respondents have attended 3 to 4 seminars and trainings related to computer operation. Six and above trainings and seminars were attended by the other 25% or 5 of the respondents. It shows that all of the respondents have related computer trainings and seminars.

2. On Description of Computer Assisted Instruction Facilities as to its availability

Table 5: Description of Computer Assisted Instruction Facilities

Indicators	WM	I	Rank
1. Computer Set	2.20	MS	4
2. Laptop	2.65	S	1
3. Projector	2.50	S	2
4. Interactive Board	1.70	MS	8
5. Television	2.00	MS	5.5
6. Modem	1.80	MS	7
7. White Board/ Screen	2.30	MS	3
8. Speaker	2.00	MS	5.5
Average Weighted Mean	**2.14**	**MS**	

Table 5 shows the description of computer assisted instruction facilities as to its availability.

Item number 2, laptop, got a highest weighted mean of 2.65 or sufficient, followed by item number 3, projector, with a weighted mean of 2.50 or sufficient. Item number 7, white

board/screen, got a weighted mean of 2.30 or moderately sufficient. Results shows that majority of the items were rated as moderately sufficient with an average weighted mean of 2.14. Also, various computer assisted instruction facilities can be seen in the institution concerned but described only as moderately sufficient. Laptop got the highest weighted mean due to the fact that majority of the teachers own one personally. Other indicators shows moderately sufficient may be due to the cost of the equipment and facilities except the speakers which is seldom used.

3. On the Effectiveness of Computer Assisted Instruction in teaching- learning process.

Table 6: Effectiveness of Computer Assisted Instruction in teaching-learning process

	Indicators	WM	I	Rank
1.	Instructors present lesson systematically and clearly	3.90	E	2.5
2.	Instructors improve learning by providing an active learning environment	3.80	E	7.5
3.	Instructors stimulate student learning	3.80	E	7.5
4.	Instructors are able to instruct large number of students simultaneously	3.85	E	4.5
5.	Instructors increase mastery of fundamental concepts of subject	3.80	E	7.5
6.	Instructors optimize the time for discussion	4.15	E	1
7.	Students easily remember the lesson much longer	3.85	E	4.5
8.	Students are able to develop critical thinking skill	3.45	ME	12
9.	Students have less time in understanding the lesson presented	3.65	E	10.5
10.	Students participate actively in learning process	3.90	E	2.5
11.	Students access easily to the lessons presented thru CAI	3.80	E	7.5
12.	Students are able to develop good character and values	3.05	ME	14
13.	Students are much motivated to listen and learn	3.65	E	10.5
14.	Students get much higher grade	3.10	ME	13
Average Weighted Mean		**3.70**	**E**	

Table 6 shows the effectiveness of computer assisted instruction in teaching learning process.

Rank 1 is the indicator that "instructors optimize the time for discussion" with a weighted mean of 4.15 or effective. It connotes that if the instructors are well knowledgeable on how to maximize the usage of computer and the likes they could deliver the topics at hand effectively and efficiently.

Shared in Rank 2.5 are the indicators that "instructors present lesson systematically and clearly" and "students participate actively in learning process" with weighted mean of 3.90 or effective. Both indicators jibe together for the students will be active in participating class discussion if the instructor could present the topics in a creative and well organize manner through the use of computer and the likes.

Shared in Rank 4.5 are the indicators that "instructors are able to instruct large number of students simultaneously and "students easily remember the lesson much longer" with a weighted mean of 3.80 or effective.

The average weighted mean is 3.70, which shows that the utilization of computer assisted instruction in teaching-learning process according the respondents was effective.

The Computer Assisted Instruction is fairly effective in developing critical thinking skill among students may be because in presenting the materials there are usually no questions for students to answer. This may be also true in the case of students getting much higher grade because students simply watch and listen while interaction may be limited. In addition, usually materials presented are focused on the content of the lesson, unless injected with values, thus CAI fairly effective in developing good character and values.

4. On the problems met by the respondent in utilizing computer assisted instruction

Table 7: Problems Met in Utilizing Computer Assisted Instruction

Indicators		*f	%	Rank
1.	Malfunction of computer assisted instruction tools	15	75	2
2.	Power interruption issues	20	100	1
3.	Compatibility issues	8	40	5
4.	Difficulty in using computers and other related tools	5	25	6
5.	Literacy of instructor in preparing and using computer assisted instruction	4	20	7
6.	Sufficiency of computer assisted instruction tools	13	65	3
7.	CAI are general costly	9	45	4

*multiple response

It is shown in Table 7 the problems met by the respondents in utilizing computer assisted instruction.

One hundred percent (100%) or 20 respondents agreed that power interruption issues was one of the foremost problem in utilizing computer assisted instruction. Seventy five percent (75%) or 15 respondents answered that "malfunction of computer assisted instruction tools" was also one of the problems being encountered in the using CAI. While "sufficiency of computer assisted instruction tools" was deemed problem by 65 percent or 13 respondents. It implies that sufficiency of CAI tools and technical problems were mostly encountered by the respondents in applying computer assisted instruction in teaching-learning process.

5. On the Solutions offered to solve problems related in utilizing computer assisted instruction

Table 8: Solutions offered to solve the problem

Indicators		*f	%	Rank
1.	Bringing own laptop and other computer assisted instruction tools	17	85	1
2.	Asking assistance from computer technicians	10	50	4
3.	Attending workshop, training and seminar related	8	40	5

	to computer assisted instruction			
4.	Providing and reproducing several back-up files in case of technical errors.	13	65	2.5
5.	Preparation of hard copy of the topics being programmed through computer	13	65	2.5

*multiple response

Table 8 presents the solutions offered in solving the problem related in utilizing computer assisted instruction as perceived by the respondents.

"Bringing own laptop and other computer assisted instruction tools" was Ranked 1 with the percentage of 85.

Shared in Rank 2. 5 are the indicators that "Providing and reproducing several back-up files in case of technical errors", and "Preparation of hard copy of the topics being programmed through computer" with a percentage of 65.

The above shows that the solutions offered by the respondents are much related to the above-mentioned technical / mechanical problems such as power interruptions and malfunction of CAI tools indicated in the preceding table.

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Summary of Findings
Based on the data gathered, the researchers came up with the following findings:

1. On the Profile of the Respondents
    1.1. Ten or 50 percent are under the 20-29 age bracket;
    1.2. Eleven or 55 percent are female;
    1.3. Seven or 35 percent of the respondents are college graduate and the other 35 percent or 7 respondents are master's degree holder; and
    1.4. Ten or 50 percent of them attended a number of at least 1 to 2 trainings and seminars related to computer operation.

2. On the Description of Computer Assisted Instruction facilities as to availability.

The first three in rank are:

    2.1.   Laptop with a WM of 2.65 or Sufficient;

    2.2.   Projector with WM of 2.50 or Sufficient; and

    2.3.   White Board/ Screen with WM of 2.30 or Moderately Sufficient.

3. On the Effectiveness of Computer Assisted Instruction in teaching-learning process.

The first three in rank are:

    3.1.   Instructors optimize the time for discussion with a WM of 4.15 or Effective;

    3.2.   Instructors present lesson systematically and clearly and Students participate actively in learning process with the same WM of 3.90 or Effective; and

    3.3.   Instructors are able to instruct large number of students simultaneously and students easily remember the lesson much longer with the same WM of 3.85 or Effective.

4. On Problems Encountered by the Respondents in utilizing Computer Assisted Instruction

The first three in rank are:

    4.1.   Power interruption issues with 20 responses or 100 percent;

    4.2.   Malfunction of Computer Assisted Instruction tools with 15 responses or 75 percent; and

    4.3.   Sufficiency of Computer Assisted Instruction tools with 13 responses or 65 percent.

5. On Solution Offered to Solve the Problems

The first three in rank are:

    5.1.   Bringing own laptop and other computer assisted instruction tools with 17 responses or 85 percent;

    5.2.   Providing and reproducing several back-up files in case of technical errors and preparation of

hard copy of the topics being programmed through computer with 13 responses or 65 percent; and

    5.3.   Asking assistance from computer technicians with 10 responses or 50 percent.

6. An action plan was crafted to strengthen the effectiveness of Computer Assisted Instruction.

CONCLUSIONS

Based on the above-mentioned findings, the following conclusions are formulated:

1. Respondents are young adults and more than half of them are females. In addition, majority of them are college and masters' degree holder with a trainings and seminars attended related to computer operation;

2. Computer assisted instruction facilities are describe as moderately sufficient in quantity generally because it is costly to buy.

3. Computer assisted instruction is effective, particularly in optimizing the instructors' time for classroom discussions as the lesson to be presented was already prepared.

4. There are problems encountered regarding the use of CAI and these are addressed.

5. An action plan was crafted to strengthen the effectiveness of computer assisted instruction in teaching-learning process.

RECOMMENDATIONS

Based on the summary of findings and conclusion, the following recommendations are hereby posited:

1. Department heads should formulate a training program to better assist and improve the competency of the instructor using of CAI. In addition, teachers need to be vigorous in enhancing their knowledge and skills about the utilization of CAI for it to be more effective through attendance in trainings, seminars, workshops and other related activities.

2. School administrators should augment the budget allocation of the college in acquiring CAI tools and constructing CAI-related facilities for the latter to be more sufficient.

3. Teachers should be up-to-date about different CAI strategies and techniques and must be careful in its application as not to divert the real purpose of it in teaching-learning process. Moreover, department heads and coordinators should facilitate a more critical and accurate assessment on the CAI methods and techniques used by the instructors through constant observation and evaluation.

4. School administrators should provide an alternative plan and strategies to be utilized in case of power interruptions and any other remedy for technical/mechanical problems related to the utilization of CAI.

5. It is suggested that the crafted action plan be implemented.

6. The future researchers must further enhance this study by including problems encountered by the students in the utilization of CAI to better determine the latters' effectiveness in teaching-learning process.

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